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Quaternary ammonium salts of oxalic acid - used as electrolytes for batteries or capacitors, antistatic agents and moisture absorbents

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Patent Family:

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JP 11100347 A		19990413	JP 97279053	A	19971013	C07C-055/07	199925 B

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Patent Details:

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JP 11100347 A			15			

Abstract (Basic): JP 11100347 A

Quaternary ammonium salts of oxalic acid of formula $[R1-N+(R2)(R3)-R4]2 \cdot [(COO-)(COO-)] (I)$ or formula $[R1-N+(R2)(R3)-R4]2 \cdot [(COO-)(COOH)] (III)$ are new.

In formulae, R1 = 1-30C alkyl, 6-30C aryl, 7-30C aralkyl;

R2-R4 = 1-6C alkyl.

(UUSEU)

Used as electrolytes for batteries or capacitors, antistatic agents, and moisture absorbents.

(UADVANTAGEU)

(I) or (II) are used suitably as antistatic agents or conductivity-giving agents for high molecular materials to improve environmental fluctuation of electric resistance and depress resistance fluctuation even in continuous turning on electricity. Further, they melt at comparatively low temperature to be used as electrolytes for batteries or condensers. Additionally they exhibit prominent hygroscopicity, and hence are useful as moisture absorbents.

(SPECIFIC COMPOUNDSU)

Bis(benzyltrimethylammonium) oxalate - (I); R1= benzyl, R2= R3= R4= methyl. Mono(benzyltrimethylammonium) oxalate - (II); R1= benzyl, R2= R3= R4= methyl.

(UPREFERRED MATERIALU)

Quaternary ammonium is benzyltrimethylammonium, benzyltriethylammonium, tetrabutylammonium, tetrapropylammonium, tetraethylammonium, or tetramethylammonium.

(UPREPARATIONU)

(I) or (II) are prep'd. by reacting oxalic acid and a quaternary ammonium hydroxide of formula $[R1-N+(R2)(R3)-R4].OH- (III)$.

(UEXAMPLEU)

1 A solution (100 g) of oxalic acid (10.78 g) in acetone was mixed with 40 wt% solution (100 g) of benzyltrimethylammonium hydroxide (0.261 mole) in methanol and further mixed with acetone (1500 g) to form white pptes., which were filtered off, dispersed in acetone (50 g), filtered off, and dried in vacuo for 24 hrs. at 80 deg. C to get 33.9 g (78.4% to oxalic acid) of bis(benzyltrimethylammonium) oxalate. It decomposed at ca. 240 deg. C (in nitrogen). Increases in amt. due to moisture absorption of this salt at 25 deg. C and 55% humidity after 10, 30, 60, and 120 min. were [from 1.43 g to] 1.51 g, 1.57 g, 1.67 g, and 1.74 g, respectively. A work similar to the first except for using 21.56g of oxalic acid was performed to get 46.80 g (87.0% to oxalic acid) of mono(benzyltrimethylammonium) oxalate. M.pt.: 130 deg. C (in nitrogen), heat decomposition point: 230 deg. C, melting latent heat: 123 J/g. (SK)

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Derwent Class: E14; E16; L03; V01; X12; X16; X25

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International Patent Class (Additional): B01J-031/02; C09K-003/16;

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